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ABSTRACT

This paper reviews the implications of the programming-planning-budgeting system (PPBS) for curriculum planning and decisions at the community college level in the state of New York. Although the state does not currently require that PPBS be utilized by its public community colleges, there is some evidence that suggests that such a mandate may be forthcoming from the legislature. It is anticipated that the PPBS concept will result in the mandating of a maximum cost per student as a determinant of state aid to the institution, with the result that some high cost per student programs may not receive funding sufficient to allow their survival. Since technical programs tend to be more costly than general education programs, it appears that they are the most threatened by implementation of PPBS. Some technical programs in community colleges, such as x-ray technology, currently cost from approximately four to ten times as much as general education programs when measured on a per student basis. It is suggested that unless PPBS is studied and mastered, curriculum planning may become an unintended budget function rather than the most stable feature of the institution. (JDS)

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PPBS: ITS IMPACT UPON CURRICULUM DECISIONS

Thomas M. Toler

JC 770 237

> "The trouble with PPBS is that it became a catchword before it was used. Some legislatures have come to require its use without specifying exactly what they want done. Still a few of us are trying to implement and adapt PPBS to higher education against the heavy odds of conventional budgeting wisdom."[1]

That response by one educator with an obvious acquaintance with the Programing-Planning-Budgeting system (PPBS) concept summarizes the current state of the art. Based on research done by the Rand Corporation, stimulated by success in the Department of Defense under Robert McNamara, PPBS arrived on the college campus approximately ten years ago. Its arrival conincided with public demands for accountability -- and PPBS seemed to offer a reasonable way to show how higher education's money was being spent. It is not surprising that PPBS became a catch-all, with instant experts, do-it-yourself workshops and all the other academic accretions. Everyone, it seemed was talking about PPBS, but doubts were widespread, as the above quotation illustrates.

What is PPBS? To fully comprehend it, one must accept the basic tenet that PPBS is first and foremost a planning technique -- not an operational actuality. George C. Mead, Michigan State University, states: "Under program budgeting,

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[1]Robert C. Judd, "Colleges Move Toward PPBS - But slowly," College and University Business, 55: 34, November, 1973.

the approach is to identify potential activities, estimate their cost, and then relate them to available financing."[2] In broad terms, PPBS is a planning system that extends beyond the familiar budgeting components, such as tuition income, capital equipment acquisition and the other trappings of conventional budget planning. Although it has only begun to appear in the lexicon of educators in any meaningful way within the past five years, its origins extend back much further. PPBS draws its origins from behavioristic psychology, particularly the "open systems" theory developed by Thomas Parsons in 1951. In reviewing this study, Katz writes:

> "Open-system theory with its entropy assumption emphasizes the close relationship between a structure and its supporting environment, in that without continued inputs the structure would soon run down. Thus one critical basis for identifying social systems is through their relationships with energic sources for their maintenance."[3]

It was through such thinking that inputs were conceived as essential to organizational change. Inputs furnish signals to the structure about its functions in relation to its surrounding environment. By the early 1960's, Katz, Allport, and other behaviorists had developed a theoretical framework

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[2]Charlie Coffman, "Statewide System Shows How PPBS Can Work On Large Scale To Help Make, Evaluate Plans, "College and University Business, 55: 34, November, 1973.

[3]Daniel Katz and Robert Kahn, "The Social Psychology of Organizations, New York, John Wiley and Sons, 1966, p.9.

for what they termed "Production Inputs," i.e.,... "energic imports which are processed to yield a productive outcome."[4] Only the introduction of high speed data processing equipment was necessary to make "production inputs" a synonym for PPBS.

PPBS is not a precise budget matrix as much as it is an approach, a framework for the accounting, analysis and measurement from which the budget itself emerges. As originally developed in the Department of Defense under McNamara, PPBS had a highly structured cycle of preparation, from the establishment of budget goals to the review of same. Owing to the obvious fact that colleges do not operate like defense departments, the adoption of PPBS on the college campus has been as individual as the character of American higher education. To some, PPBS has made concrete the dollar value of higher education; to others, it is an aspect of "management" which they find objectionable. In this regard, a recent (Nov., 1973) survey by College and University Business is enlightening. In 1969, the journal surveyed 710 colleges and universities and found that 22 per cent were using PPBS as their method of budgeting with another 39 per cent reporting they planned to engage in PPBS endeavors in the near future. The study just completed makes it clear that PPBS has not been as rapidly or as widely adopted as was

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[4] Ibid.,p.32.

earlier anticipated. When 74 individuals who had been reported as "the person on their campus most interested in and knowledgeable about PPBS" were questioned on "the degree of involvement in PPBS on your campus," 40.5 per cent reported no use on their campus.[5]

PPBS is characterized by concern for the development of goals, objectives, programs, budget, and finally -- operational evaluation. The nation's two-year community colleges are well aware of the significance of PPBS. Many of these colleges must comply with PPBS mandates if they are to continue to receive state operating aid. In comparing implementation of PPBS principles among community colleges and four-year institutions, the College and University Business survey indicates that the only apparent foothold two year colleges have in PPBS is a knowledge of "objectives" and programs. Inclusion of PPBS planning in budget preparation and operation evaluation appear to be weak in all sectors of higher education, particularly among community colleges.[6]

But is PPBS a panacea for a college's budgetary ills? Or is it a topical notion that forces colleges to "go through motions without a real commitment, something that is inherently distasteful" as one observer indicated?

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[5]Robert E. Hoye, "New Budget Systems: Mixed Blessing," College and University Business, p.38.

[6]Loc. cit.

The most widespread significance of PPBS is identification of true costs of academic programs. Before the introduction of the system, it was nearly impossible for a curious legislator, or trustee for that matter, to determine what it costs to educate a nurse, an electrical engineer, or a physician. Further, colleges had little idea of departmental costs for selected student majors. PPBS has changed all this. Its proponents cites these advantages to the system: improved allocation of resources, articulation of outcomes between colleges and governmental agencies, establishment of objectives with proper indicators for measurement, and the inherent flexibility of accurate costs for operational expenditures. On the other hand, critics say the PPBS system generates more paper work and record keeping, and new personnel training requirements. All of this, they add, within a system in which it difficult to force academic communities to think in terms of cost benefits.

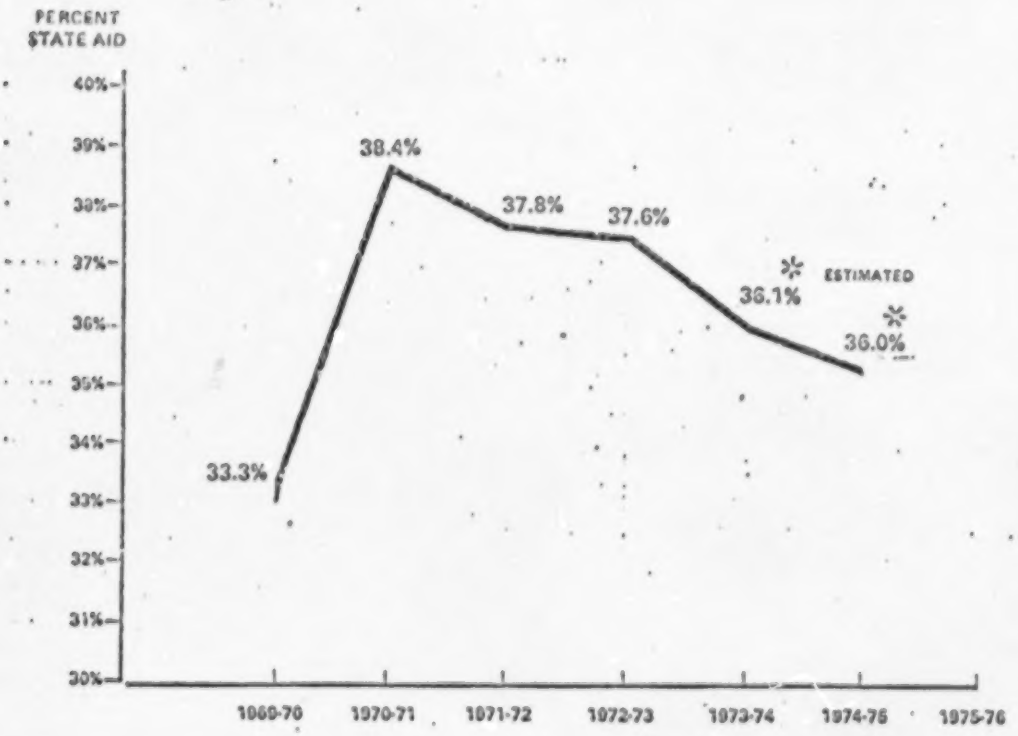
The State University of New York evidently shares the view of the PPBS proponents. Last year, after lengthly consultation with the SUNY Council of Presidents, the State University of New York Board of Trustees submitted to the State legislature a three-year plan for budget "reform" within the state's 38 two-year public community colleges. Not surprisingly, the most significant aspect of the proposed legislation was a mandate for the use of PPBS accounting and budgeting procedures. The new funding proposals would channel

state aid to the community colleges based upon the real costs of academic programs. To the delight of some and the dismay of others, the proposed legislature was never reported out of committee. During the 1975 session in Albany, the State University once again proposed the budgetary reform package with the PPBS provisions delayed until 1976. The legislation was not approved. The fiscal crisis with which the current legislature has been dealing has deferred any action on such measures as PPBS in higher education. The legislature has instead followed the simpler dictum of establishing enrollment "lids" at the colleges. This is admittedly a stop gap measure, and there is the likelihood that the gradual recovery of the state's economy will lead to renewed emphasis on PPBS for the community colleges.

When the PPBS guidelines become a formal requirement for the community colleges, state aid will be provided to each college based on its enrollment by major field of study. Cost categories will recognize annual changes in regional economic conditions, differential costs of large and small institutions, and costs associated with the provision of remedial, counselling, and tutorial services. Assuming the new legislation will eventually be approved, an examination of the long and short term effects upon curriculum becomes necessary.

One certain short term effect of the new legislation will be the limitation of state aid revenue to community colleges. When the community colleges were established, the legislation called for funding to be divided into what amounted to equal thirds among the sponsoring county, the state, and students. In 1970, legislation was approved which designated many of the state's community colleges as "full opportunity colleges" (FOP) guarantee admission to high school students and veterans who reside within the college's sponsorship area. Many colleges welcomed the FOP designation because the legislation carried with it an increase to 40% for state operating aid. For the 1973-74 period, however, state aid revenue totaled only 35 percent of the community colleges' operating budgets. The SUNY trustees have been following this trend and have included several new recommendations in the legislative proposal now before the state law makers. Specifically, they are requesting the continuation of the 40% aid ceiling and supplemental support of $250 for each full-time equivalent student enrolled in a high cost technical program. The budget proposed by Governor Carey, however, falls short of the SUNY recommendations. The governor's budget reduces state support to FOP colleges from 36 percent to between 33 and 34 percent.

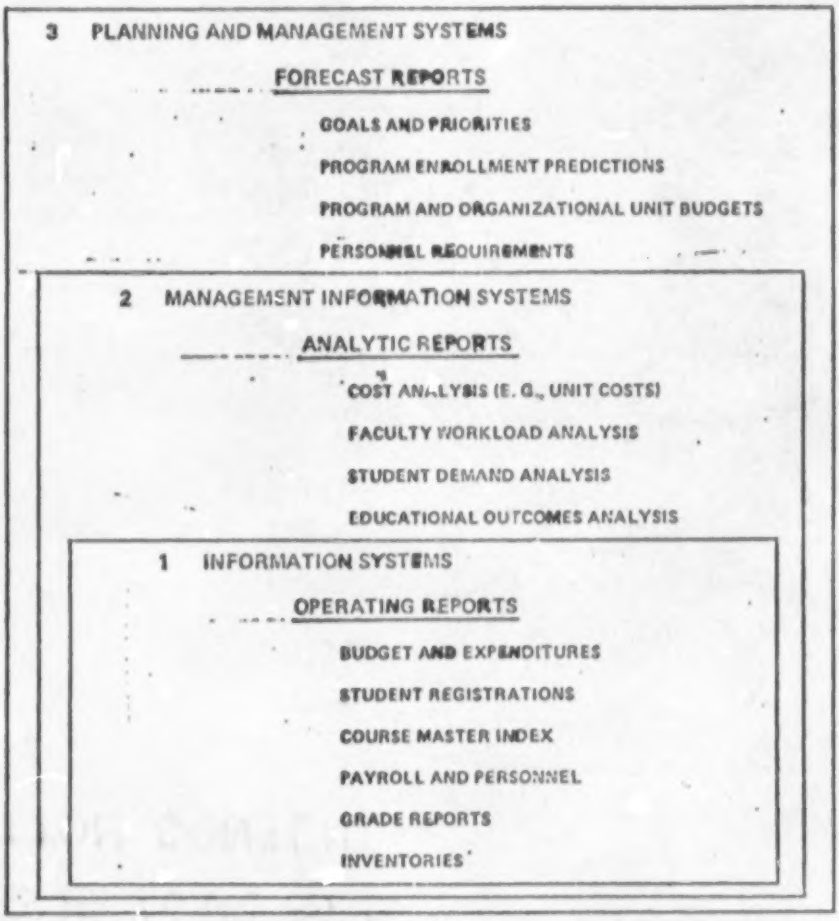
At the present time, the trend of state aid as a percent of net operating budgets is as follows:



SOURCE: SUNY Office of Community Colleges

With stabilized or declining state revenues established as an operating principles in the years ahead, community colleges are concentrating on the first element of PPBS budgeting: "average operating costs per FTE". This figure -- basically the cost of each full-time student regardless of program -- begins to give a college one necessary "input" in establishing a sound system of cost analysis. In guidelines

accompanying the PPBS system, State University established a hierarchy of information systems which is quite useful when discussing how colleges must deal with the provisions of PPBS funding measures.



SOURCE: SUNY Office Of Community College

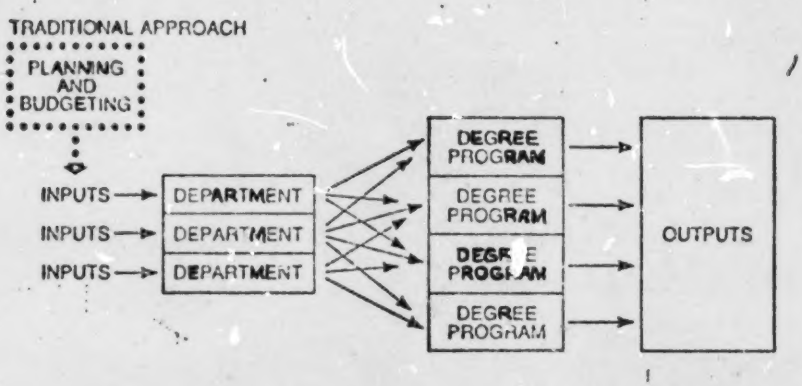
Not surprisingly, "goals and priorities" are at the top of the list and they become even more meaningful when one makes reference to the future impact of PPBS. In developing their average operating costs per FTE and comparing these to goals (in this case additional increments to the state aid ceiling), colleges have discovered that their

average costs of educating students are growing at a much faster rate than state aid. At Rockland Community College, for example, average operating costs per FTE during the period 1972/73-1973/74 increased by more than 10 per cent while state aid dropped by three per cent during the same period.

Despite the uncertainties of state aid during the next budget year and the larger issue of the state's support of community college education, it is a certainty that PPBS will continue to exert an influence upon curriculum planning. This aspect is one which is probably most significant to curriculum development and one which will be the central focus for the balance of this paper. After a careful review of PPBS applications now in general use by colleges, I believe the program budgeting concept will restrict the development of technical curricula in community colleges. The question then is simply this: will the mandating of cost per program or per student (general PPBS guidelines) as a determinant of state aid hinder the responsiveness and diversity of the curricula at the state's community colleges, colleges where full-time enrollment now exceeds 111,000?

Before one reviews the budgetary data now available among the state's community colleges now utilizing PPBS guidelines, it is helpful to once again refer to SUNY guidelines for reference. In referring to the traditional

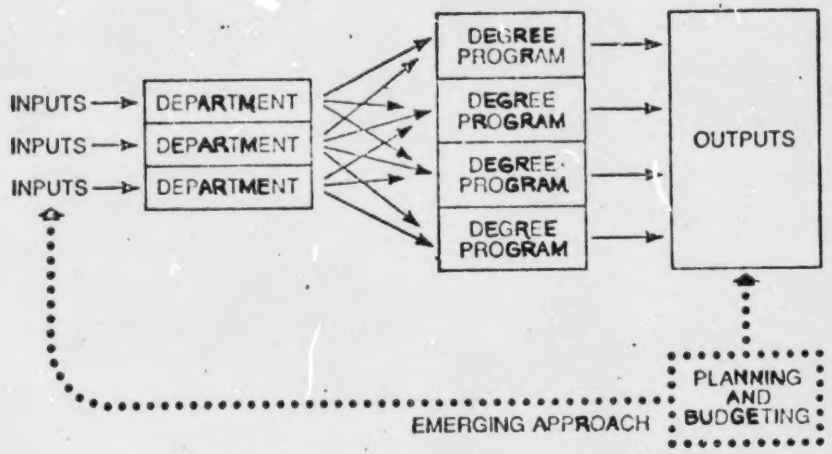
planning and budgeting approach in higher ecudation, SUNY has designed an input chart:



SOURCE: SUNY Office For Community Colleges

Notice that the interpretation here is entirely literal, i.e., a pyramid approach to planning with little recognition or attention to probable outputs. It does indicate, however, the fact that many departments serve students in a variety of curricula. The PPBS approach, as the illustration makes clear, alters the traditional approach with what appears to

be equal attention given to inputs as well as outputs:



SOURCE: SUNY Office For Community Colleges

The combination of attention to departmental inputs, degree programs, and the expected output has provided educational planners with what is known in PPBS parlance as the "induced course load matrix," a rather stylized method of indicting now given departments unit costs are analyzed (salaries and equipment divided by number of faculty per department), degree program costs can be computed. If the matrix indicates a business major registers for 2.4 hours of history, 3.8 hours

of English, and 5.7 hours of mathematics, the availability of departmental unit costs, when totaled, will reveal the total costs per student in each major field.

Aside from state guidelines, have colleges had any authoritative source to turn to their institutions? Fortunately, the work of WICHE (Western Interstate Commission for Higher Education) has been singular in its contributions to PPBS. Through its National Center for Higher Education Management System (NCHEMS), the agency has developed new tools and techniques which aid the educational management and decision-making process. In 1973, NCHEMS developed a standard set of data and a software package which provided important new information of 12 selected colleges. New budgetary terms began to emerge from the study: "direct discipline unit costs," "number of credit hours produced per FTE teaching faculty", among others. Twelve two and four year colleges took part in this initial study and all reported fruitful results. Several of these institutional case studies are relevant to this paper.

Community College of Philadelphia implemented the PPBS model in 1972 and reported significant results in curriculum planning and collective negotiations. With one software package, the college took each new curriculum proposal for a new or altered program and simulated the overall cost and impact on staffing in various departments.

Community College of Philadelphia was opened in 1965 and still is experiencing enrollment growth. Use of PPBS at that college has enabled curriculum planners "to understand that enrollment growth does not necessarily translate into an equally distributed or linear budget growth for all departments."[7] In an even more interesting application, the college used another simulation model for use during collective bargaining. First, the college anticipated many of the demands related to workloads, salaries, fringe benefits that the union representatives were likely to put forth and simulated the financial impact of each proposal ahead of time. This provided the administration with substantial understanding of which proposals were the most cost sensitive and hence would require closest scrutiny. A second utilization of the simulation model was during the actual negotiations themselves. New union proposals related to staffing patterns, workloads, and so forth, could be rolled forward by means of an overnight computer run or within a matter of days to access not only the immediate budgetary impact but also the effect three years in the future.

County College of Morris (New Jersey) is probably even more representative of New York's two-year public colleges. Prior to working with the NCHEMS packages, the only unit

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[7]Huff, Robert A., and Young, Michael E. "Profiles of Management Information Uses," National Center for Higher Education Management Systems at WICHE, May, 1974, p. 39.

costs that had been available at the college were average cost per student with no attention given to variations in costs among the several technical and transfer curricula being offered. In 1973, the college was able to construct unit cost tables that compared on a program-by-program basis the annual cost per FTE student majors among the community colleges taking part in the NCHEMS field study. The college was then able to show its own trustees and the Freeholders that its costs were very much in line and that programs which were expensive at Morris County were equally expensive at other campuses. Had it not been for the new budget data, school officials believe that the Freeholders probably would have cut the college budget by approximately five per cent or required that tuition be raised so increased costs could be passed on to the students.

The availability of such sophisticated data at critical times in a college's development strengthens Moran's observations. Writing in the Journal of Higher Education,[8] he describes PPBS and other management information systems as "precise, artificial measuring devices" which substitute for human perceptions. As such, "they are not a substitute for administrative judgment," he explains. "But they do reduce the clutter of information and thus permit the freer

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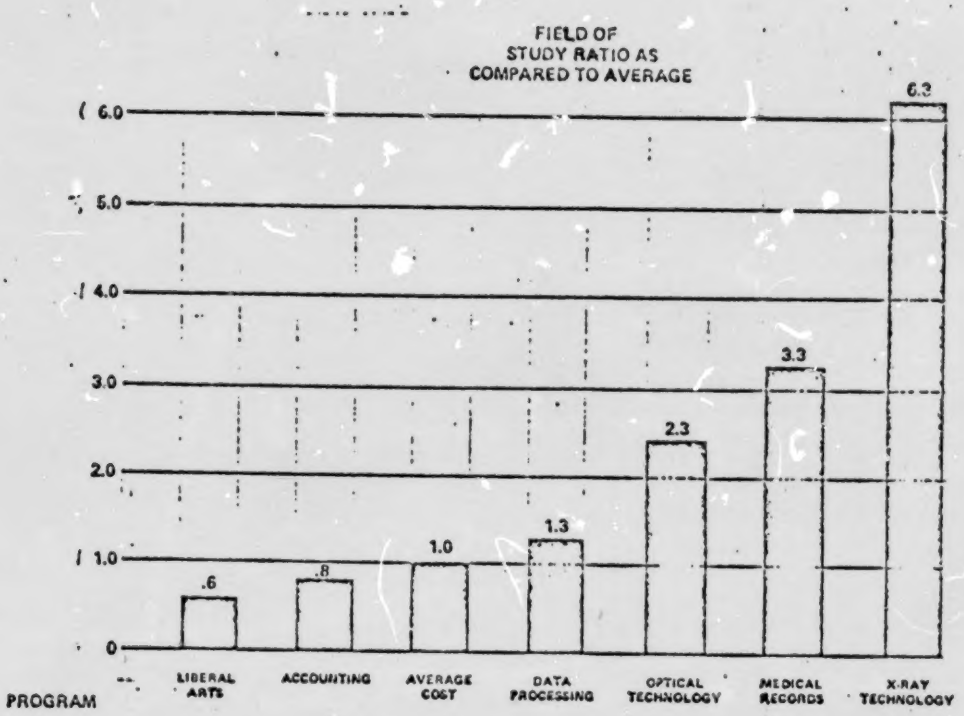
[8] William Moran, "The Instrumentation of Universities," Journal of Higher Education, April, 1967, p.192.

exercise of judgment, based on more reliable information."

Community Colleges in New York have had only limited and rather perfunctory experience with PPBS at the present time. Monroe Community College in Rochester, N.Y. is one of the few community colleges to experiment with the NCHEMS packages. The Monroe experience, while strengthening the validity of PPBS and evidently pleasing college officials, produced a variety of data which are not optimistic for technical curricula. One table completed by Monroe in the study reveals the "field of study ratio as compared to the average. "Average" in this study indicated the average cost per student -- $1726 in the case of Monroe. The various general education and technical programs at the college were then factored out according to this norm. Compared to its average cost per student, Monroe found the cost of educating a liberal arts student to be extremely cost efficient (.6). Technical curricula, on the other hand, consistently appeared at the top of the scale with optical technology costing 2.3 times the average; Medical Records 3.3 times the average, and X-ray technology, 6.3 times the average! The full cost program budget then, appears as the following table:



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SOURCE: SUNY Office For Community College

There is little doubt that the availability of such specific program costs will curtail the development of technical curricula. A review of the Monroe table indicates even to the novice budget analyst that the programs in X-Ray Technology and Bio-Medical Engineering technology will require substantial justification. Adding to the high cost of these programs are minimum graduation requirements which are four to six hours[9] more than other curricula.

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[9]Monroe Community College, "Cost Data and Descriptive Information Developed Through Use of NCHEMS Analytic Tools and Preliminary Information Exchange Procedures," December, 1973, p.11.

The dilemma then is what will happen to such high cost programs when the new state PPBS guidelines establish cut off points in funding. At that unknown point in time, the bedrock of community college educational programs -- technical curricula -- may prove to be a hindrance. If reduced state aid and student tuition leave a program only partially funded, what will occur? The program will undoubtedly be phased out, and most participate an even more obvious condition: unless the PPBS system is studied and mastered, curriculum planning may become an unintended budget faction rather than "the most stable feature of an institution."[10] There is no doubt that the profusion of technical curricula at community colleges will be checked by the advent of PPBS. Some departments and administrative planners will survive; others will not. The difference between success and failure in their endeavors may well be found in a PPBS maxim: It is better to be approximately right than precisely wrong.

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[10]Paul L. Dressel, College and University Curriculum, Berkeley: McCutchan Publishing Corporation, 1968, p.1.

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